MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2022/2023 (TERM ID 2215)

PBC0016–BASIC COMPUTING AND PROGRAMMING

(Foundation in Engineering)

16 FEBRUARY 2023
9.00 a.m. - 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of **FIVE** printed pages with **FOUR** questions.
2. Answer **ALL** questions.
3. Write your answers in the Answer Booklet.

Question 1 (25 marks)

(a) The motherboard is the main circuit board that contains the central electronic components of a computer. Name **TWO (2)** main components of a computer on a motherboard and describe its main function in a computer. [2+4 marks]

(b) Suggest a suitable type of computing device for the following tasks and explain your reason for choosing that computing device.
(i) Large-scale application in medicine. [3 marks]
(ii) Bulk data processing. [3 marks]

(c) An email server is an example of a server computer. Describe **TWO (2)** characteristics of a server computer. [4 marks]

(d) The size of a 10-minute video recording is approximately 35 MB. How many minutes of video recording can be stored in a USB flash drive with 16 GB of storage? Show your calculation. [3 marks]

(e) All computing devices have its operating system. List **THREE (3)** functions of an operating system in computing devices. [3 marks]

(f) Can motion input be used on a mobile phone? Justify your answer. [Hint: Your answer must include the definition of motion input]. [1+2 marks]

Question 2 (25 marks)

(a) Digital communication is a process in which two or more computing devices transfer data, instructions and information. A communication channel, communication devices, sending and receiving devices are needed for a successful communication.

(i) With a suitable example, describe a communication channel. [3 marks]
(ii) With a suitable example, describe a communication device. [3 marks]
(iii) With a suitable example, describe the function of a sending device. [3 marks]
(iv) With a suitable example, describe the function of a receiving device. [3 marks]

(b) Most mobile phones have global positioning system (GPS). Define GPS. Describe its function and give **ONE (1)** example of a GPS receivers. [4+1 marks]

(c) Describe the function of hypertext transfer protocol (HTTP). What is the difference between HTTP and hypertext transfer protocol secure (HTTPS)? [2+2 marks]

Continued...

Question 2 (Continued..)

(d) Consider an example of a website address or uniform resource locator (URL) - https://www.sigma.com.my/~alpha/staff/january.html

(i) Identify the protocol in the address. [1 mark]
(ii) Identify the domain name in the address. [1 mark]
(iii) Identify the path in the address. [1 mark]
(iv) Identify the file name in the address. [1 mark]

Question 3

(a) Vector graphic and bitmap image are two types of graphics. Compare **TWO (2)** differences between vector and bitmap images. Your answer must include an example of a file format for each type of image. [4+2 marks]

(b) Augmented reality is being used in the gaming industry. With a suitable example, describe augmented reality. [4 marks]

(c) Is animation and video the same? Justify your answer with definitions of both animation and video. [1+4 marks]

(d) Which type of monitor can display a higher number of colours, an 8-bit colour display or a 24-bit colour display? Justify your answer. [2 marks]

(e) Describe **TWO (2)** examples of applications using Internet of Things (IoT) in a smart home. [4 marks]

(f) With a suitable example, describe the term 'digital convergence'. [4 marks]

Question 4

(a) List **FOUR (4)** rules of naming a variable in a C program. [4 marks]

(b) Let `x` and `y` be variables in a computer program with the values of `x = 10` and `y = 8`. State the output of the following C statements. [6 marks]

(i) `printf("%d", x-y);`
(ii) `printf("%d + %d = %d", x,y,x+y);`
(iii) `printf("%d * %d = %d", x,x,x*x);`

Continued...

Question 4 (Continued..)

(c) Identify and correct **FIVE (5)** errors in the C code listed in Figure Q4 (a). Rewrite the C program and underline the corrections in your answer. The correct program will print out the following output:

0	1	2	3	4	5	6	7

[5 marks]

```
1     #includes <stdio.h>
2
3     int main ()
4     {
5         int i;
6
7         for (a=0:a<9;a++)
8
9          printf("%c\t",a);
10
11        return 0;
12
13     }
14
```

Figure Q4 (a): C code with errors.

(d) Table Q4 shows the price per set for three types of lunch set meal in a restaurant.

Type of lunch set	Price per set (RM)
A	25
B	20
C	18

Table Q4: Type of lunch set and its price per set (in Ringgit Malaysia, RM)

Write a program that will calculate the total amount required for payment. Your program will prompt the user to enter the type of lunch set chosen and the number of sets required.

The program then displays the total price of meal, RM 1 service tax for each set purchased and the total amount required for payment. The total amount required for payment is the total price of the meal and the RM 1 service tax for each set. If the user enters a lunch set that is not A, B or C, the program will display 'Please enter a lunch set meal of either A, B, or C'. Sample outputs are shown in Figure Q4 (b).

Continued...

Question 4 (Continued..)

```
Type of lunch set meal: A
Number of sets: 1

Total price of meal = RM 25
Service tax = RM 1
Total amount for payment = RM 26
```

```
Type of lunch set meal: B
Number of sets: 2

Total price of meal = RM 40
Service tax = RM 2
Total amount for payment = RM 42
```

```
Type of lunch set meal: C
Number of sets: 10

Total price of meal = RM 180
Service tax = RM 10
Total amount for payment = RM 190
```

```
Type of lunch set meal: K
Number of sets: 2

Please enter a lunch set meal of either A, B or C.
```

Figure Q4 (b): Sample Outputs (**Bold and underlined** denotes user's input)

[10 marks]

End of Paper